

AMENDMENTS TO THE CLAIMS

Listing of Claims

5 1. (currently amended) A method of injection molding a plastic product having a base wall and a sidewall, the method comprising the steps of:

 (a) shaping a mold cavity by combining a first mold part and a second mold part in opposition to one another;

 (b) injecting fluid plastic material into a base-wall section of a mold cavity; and

10 ~~(b)~~ (c) conducting said injected plastic material through at least one flow guide in the base-wall section and thence into a sidewall section of the mold cavity;

wherein step (a) comprises the step of:

~~(d) shaping a portion of a given said base-wall section flow guide by partially opposing a row of recesses in the first mold part with a row of recesses in the second~~
15 ~~mold part with the recesses in the first mold part being so staggered with respect to the recesses in the second mold part as to provide a chain of overlapping recesses that form a~~
~~sequence of variable-opening throttles having openings that can vary within the given flow guide whenever the alignment between the combined first and second mold parts varies~~ wherein step (b) comprises the step of: ~~(c) conducting said injected plastic material~~

20 ~~through a sequence of variable opening throttles in said at least one base wall section flow guide, wherein the openings of said throttles can vary in response to variations in the thickness of a region of the sidewall section into which injected plastic material is conducted from said at least one base wall section~~ the given flow guide so that upon an

increase in the thickness of said region the openings of said throttles in ~~said at least one base-wall-section~~ the given flow guide decrease and so that upon a decrease in the thickness of said region the openings of said throttles in the ~~said at least one base-wall-section~~ given flow guide increase.

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2. (original) A method according to Claim 1, further comprising the step of:

(d) within the sidewall section of the mold cavity, directing the flow of some of the injected plastic material by means of at least one sidewall-section flow guide.

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3. (original) A method according to Claim 1, further comprising the step of:

(d) within the sidewall section of the mold cavity, directing the flow of some of the injected plastic material by means of a sidewall-section flow guide that extends from said at-least-one base-wall-section flow guide.

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4. (original) A method according to Claim 1, wherein step (b) comprises conducting said injected plastic material through a plurality of said throttled base-section flow guides and thence into the sidewall section of the mold cavity.

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5. (original) A method according to Claim 4, wherein the method further comprises the step of:

(d) directing the injected fluid plastic material into thin-wall cavity sectors of the base-wall section to chambers adjacent the sidewall-section periphery of the base-wall section at a juncture of the plastic material directed into thin-wall cavity sectors of the

base-wall section by the flow guides adjacent the thin-wall cavity sectors to thereby form ridges on the inside of the base wall of the injection-molded product.

6. (original) A method according to Claim 4, further comprising the step of:

5 (d) within the sidewall section of the mold cavity, directing the flow of some of the injected plastic material by means of sidewall-section flow guides that extend respectively from a plurality of said throttled base-wall-section flow guides.

7. (currently amended) A method according to Claim 1, 4, ~~further comprising the~~
10 ~~step of:~~

~~(d) shaping the mold cavity by combining a first mold part and a second mold part in an aligned opposition to one another;~~

~~wherein at least some of the throttles are shaped by a continuous sequence of partially opposed recesses in the combined first and second mold parts, with at least some of the opposed recesses being so staggered in the respective direction of conduction within the individual base wall section flow guides that whenever the alignment between the combined first and second mold parts varies along the direction of conduction for a given flow guide the openings of the throttles in the given flow guide vary~~

wherein the width of a given said throttle is not more than the width of the
20 overlapping recesses that form the given throttle.

8. (currently amended) A method according to Claim 1, ~~further comprising the step of:~~

~~(d) shaping the mold cavity by combining a first mold part and a second mold part in an aligned opposition to one another;~~

5 ~~wherein at least some of the throttles are shaped by a continuous sequence of partially opposed recesses in the combined first and second mold parts, with at least some of the opposed recesses being so staggered in the respective direction of conduction within the individual base-wall-section flow guides that whenever the alignment between the combined first and second mold parts varies along the direction of conduction for a~~
10 ~~given flow guide the openings of the throttles in the given flow guide vary~~

wherein the width of a given said throttle is less than the width of the overlapping recesses that form the given throttle.

9. (original) A method according to Claim 1, wherein the base-wall section
15 includes a plurality of said throttled flow guides that extend radially for conducting said injected plastic material through the base-wall section and thence into the sidewall section of the mold cavity; further comprising the step of:

(d) conducting the injected plastic material within the base-wall section by means of a plurality of concentric flow guides that intersect the radially extending flow guides.

20 10. (original) A method according to Claim 1, further comprising the step of:

(d) adjusting said conduction within the at-least-one base-wall-section flow guide by protracting a movable mold part into said flow guide or by retracting a movable mold part from said flow guide.

11. (currently amended) A method according to Claim 1, wherein the mold parts include an adjustable cavity mold part and a core mold part for shaping at least a portion of the base-wall section of the mold cavity when the adjustable cavity mold part and the core mold part are combined in an ~~aligned~~ opposition to one another;

5 the method further comprising the step of:

(d) initializing the position of the adjustable cavity mold part to adjust the alignment between the adjustable cavity mold part and the core mold part.

12. (original) A method according to Claim 11, further comprising the step of:

10 (e) dynamically varying the position of the adjustable cavity mold part to further adjust the alignment between the adjustable cavity mold part and the core mold part.

13. (currently amended) A method according to Claim 1, wherein the mold parts include an adjustable cavity mold part and a core mold part for shaping at least a portion of the base-wall section of the mold cavity when the adjustable cavity mold part and the core mold part are combined in an ~~aligned~~ opposition to one another;

the method further comprising the step of:

(d) dynamically varying the position of the adjustable cavity mold part to adjust the alignment between the adjustable cavity mold part and the core mold part.

20 14. (original) A method according to Claim 1, further comprising the step of:

(d) shaping the mold cavity by combining opposed first and second mold parts in a direction of mold closure; and

wherein the shortest distance within the mold cavity in said direction of mold closure is larger than the elastic compression distance of the mold cavity when the mold

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is compressed by a requisite clamping force.

15. (newly amended) A mold for injection molding a plastic product having a base wall and a sidewall, comprising:

5 mold parts for shaping a mold cavity for forming the product and a gate from which fluid plastic material can be injected into a base-wall section of the mold cavity;

wherein the base-wall section includes at least one flow guide for conducting said injected plastic material through the base-wall section and thence into a sidewall section of the mold cavity; and

10 wherein the ~~at least one base-wall section flow guide~~ mold parts include a first mold part that includes a row of recesses and a second mold part that includes a row of recesses that are partially opposed to the row of recesses in the first mold part to shape a portion of a given said base-wall section flow guide when the first and second mold parts are combined in opposition to one another with the recesses in the first mold part being so
15 staggered with respect to the recesses in the second mold part as to provide a chain of overlapping recesses that form a sequence of variable-opening throttles ~~through which said injected plastic material is so conducted, wherein the openings of said throttles having openings that~~ can vary within the given flow guide whenever the alignment between the combined first and second mold parts varies in response to variations in the
20 thickness of a region of the sidewall section into which injected plastic material is conducted from ~~said at least one base-wall section~~ the given flow guide so that upon an increase in the thickness of said region the openings of said throttles in ~~said at least one base-wall section~~ the given flow guide decrease and so that upon a decrease in the thickness of said region the openings of said throttles in the ~~said at least one base-wall~~

~~section given~~ flow guide increase.

16. (original) A mold according to Claim 15, wherein the sidewall section of the mold cavity includes at least one flow guide for directing the flow of some of the injected plastic material.

17. (original) A mold according to Claim 15, wherein said at-least-one sidewall-section flow guide extends from said at-least-one base-wall-section flow guide.

18. (original) A mold according to Claim 15, wherein the base-wall section includes a plurality of said throttled flow guides for conducting said injected plastic material through the base-wall section and thence into the sidewall section of the mold cavity.

19. (original) A mold according to Claim 18, wherein the sidewall section includes a plurality of flow guides respectively extending from a plurality of said throttled base-wall-section flow guides for directing the flow of some of the injected plastic material within the sidewall-section.

20. (original) A mold according to Claim 18, wherein the mold cavity further includes chambers adjacent the sidewall-section periphery of the base-wall section at a juncture of the plastic material directed into thin-wall cavity sectors of the base-wall section by flow guides adjacent the thin-wall cavity sectors for forming ridges on the inside of the base wall of the injection-molded product.

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21. (currently amended) A mold according to Claim 15, 18, ~~wherein the mold parts include a first mold part and a second mold part for shaping the mold cavity when the first and second mold parts are combined in an aligned opposition to one another; and wherein the throttles are shaped by partially opposed recesses in the combined~~
5 ~~first and second mold parts, with the opposed recesses being so staggered in the respective direction of conduction within the individual base wall section flow guides that whenever the alignment between the combined first and second mold parts varies along the direction of conduction for a given flow guide the openings of the throttles in the given flow guide vary~~

10 wherein the width of a given said throttle is not more than the width of the overlapping recesses that form the given throttle.

22. (currently amended) A mold according to Claim 15, ~~wherein the mold parts include a first mold part and a second mold part for shaping the mold cavity when the~~
15 ~~first and second mold parts are combined in an aligned opposition to one another; and wherein the throttles are shaped by partially opposed recesses in the combined first and second mold parts, with the opposed recesses being so staggered along the direction of conduction within the at least one base wall section flow guide that whenever the alignment between the combined first and second mold parts varies in said~~
20 ~~direction the openings of the throttles vary~~

wherein the width of a given said throttle is less than the width of the overlapping recesses that form the given throttle.

section of the mold cavity and a plurality of concentric flow guides that intersect the radially extending flow guides.

24. (original) A mold according to Claim 15, wherein the mold parts include a
5 movable mold part that is disposed for protraction into and retraction from the at-least-one base-wall-section flow guide for adjusting said conduction within said flow guide.

25. (currently amended) A mold according to Claim 15, wherein the mold parts
include an adjustable cavity mold part and a core mold part for shaping at least a portion
10 of the base-wall section of the mold cavity when the adjustable cavity mold part and the core mold part are combined in an aligned opposition to one another;

the mold further comprising:

means for initializing the position of the adjustable cavity mold part to adjust the
alignment between the adjustable cavity mold part and the core mold part.

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26. (original) A mold according to Claim 25, further comprising:

means for dynamically varying the position of the adjustable cavity mold part to
adjust the alignment between the adjustable cavity mold part and the core mold part.

20 27. (currently amended) A mold according to Claim 15, wherein the mold parts include an adjustable cavity mold part and a core mold part for shaping at least a portion of the base-wall section of the mold cavity when the adjustable cavity mold part and the core mold part are combined in an aligned opposition to one another;

the mold further comprising:

means for dynamically varying the position of the adjustable cavity mold part to adjust the alignment between the adjustable cavity mold part and the core mold part.

5 28. (original) A mold according to Claim 15, wherein the mold cavity is shaped by combining opposed first and second mold parts in a direction of mold closure; and

wherein the shortest distance within the mold cavity in said direction of mold closure is larger than the elastic compression distance of the mold cavity when the mold is compressed by a requisite clamping force.

10 29. (original) A method of injection molding a plastic product, the method comprising the steps of:

(a) injecting fluid plastic material into a mold cavity;

(b) conducting said injected plastic material through at least one flow guide in the
15 mold cavity; and

(c) adjusting said conduction within the at-least-one flow guide by protracting a movable mold part into said flow guide or by retracting a movable mold part from said flow guide.

20 30. (original) A method according to Claim 29, wherein the at-least-one flow guide includes a first segment and a second segment that is misaligned with the first segment but that overlaps the first segment to enable conduction of fluid plastic material from the first segment to the second segment;

wherein the movable mold part is disposed at said overlap; and

wherein step (c) includes protracting the movable mold part to decrease said overlap or retracting the movable mold part to increase said overlap.

5 31. (original) A mold for injection molding a plastic product, comprising:

mold parts for shaping a mold cavity for forming the product and a gate from which fluid plastic material can be injected into the mold cavity;

wherein the mold cavity includes at least one flow guide for conducting said injected plastic material within the mold cavity; and

10 wherein the mold parts include a movable mold part that is disposed for protraction into and retraction from the at-least-one flow guide for adjusting said conduction within said flow guide.

32. (original) A mold according to Claim 31, wherein the at-least-one flow guide
15 includes a first segment and a second segment that is misaligned with the first segment but that overlaps the first segment to enable conduction of fluid plastic material from the first segment to the second segment; and

wherein the movable mold part is disposed at said overlap to decrease said overlap when the movable mold part is protracted and to increase said overlap when the
20 movable mold part is retracted.

33. (new) A method of injection molding a plastic product having a base wall and a sidewall, the method comprising the steps of:

(a) injecting fluid plastic material into a base-wall section of a mold cavity (18);
and

5 (b) conducting said injected plastic material through a sequence of variable-opening throttles in a plurality of flow guides in the base-wall section and thence into a sidewall section of the mold cavity, wherein the openings of said throttles can vary in response to variations in the thickness of a region of the sidewall section into which injected plastic material is conducted from a given said at-least-one base-wall-section
10 flow guide so that upon an increase in the thickness of said region the openings of said throttles in the given flow guide decrease and so that upon a decrease in the thickness of said region the openings of said throttles in the given flow guide increase; and

 (c) directing the injected fluid plastic material into thin-wall cavity sectors of the base-wall section to chambers adjacent the sidewall-section periphery of the base-wall
15 section at a juncture of the plastic material directed into thin-wall cavity sectors of the base-wall section by the flow guides adjacent the thin-wall cavity sectors to thereby form ridges on the inside of the base wall of the injection-molded product.

34. (new) A method of injection molding a plastic product having a base wall and a sidewall, the method comprising the steps of:

(a) injecting fluid plastic material into a base-wall section of a mold cavity; and

(b) conducting said injected plastic material through at least one flow guide in the
5 base-wall section and thence into a sidewall section of the mold cavity;

wherein step (b) comprises the step of:

(c) conducting said injected plastic material through a sequence of variable-opening throttles in a given said at-least-one base-wall-section flow guide, wherein the openings of said throttles can vary in response to variations in the thickness of a region of
10 the sidewall section into which injected plastic material is conducted from the given flow guide so that upon an increase in the thickness of said region the openings of said throttles in the given flow guide decrease and so that upon a decrease in the thickness of said region the openings of said throttles in the given flow guide increase;

the method further comprising the step of:

15 (d) adjusting said conduction within the at-least-one base-wall-section flow guide by protracting a movable mold part into said flow guide or by retracting a movable mold part from said flow guide.

35. (new) A method of injection molding a plastic product having a base wall and a sidewall, the method comprising the steps of:

(a) injecting fluid plastic material into a base-wall section of a mold cavity; and

(b) conducting said injected plastic material through at least one flow guide in the
5 base-wall section and thence into a sidewall section of the mold cavity;

wherein step (b) comprises the step of:

(c) conducting said injected plastic material through a sequence of variable-opening throttles in a given said at-least-one base-wall-section flow guide, wherein the openings of said throttles can vary in response to variations in the thickness of a region of
10 the sidewall section into which injected plastic material is conducted from the given flow guide so that upon an increase in the thickness of said region the openings of said throttles in the given flow guide decrease and so that upon a decrease in the thickness of said region the openings of said throttles in the given flow guide increase;

wherein the mold parts include an adjustable cavity mold part and a core mold
15 part for shaping at least a portion of the base-wall section of the mold cavity when the adjustable cavity mold part and the core mold part are combined in opposition to one another;

the method further comprising the step of:

(d) initializing the position of the adjustable cavity mold part to adjust the
20 alignment between the adjustable cavity mold part and the core mold part.

36. (new) A method according to Claim 35, further comprising the step of:

(e) dynamically varying the position of the adjustable cavity mold part to further adjust the alignment between the adjustable cavity mold part and the core mold part.

5 37. (new) A method of injection molding a plastic product having a base wall and a sidewall, the method comprising the steps of:

(a) injecting fluid plastic material into a base-wall section of a mold cavity; and

(b) conducting said injected plastic material through at least one flow guide in the base-wall section and thence into a sidewall section of the mold cavity;

10 wherein step (b) comprises the step of:

(c) conducting said injected plastic material through a sequence of variable-opening throttles in a given said at-least-one base-wall-section flow guide, wherein the openings of said throttles can vary in response to variations in the thickness of a region of the sidewall section into which injected plastic material is conducted from the given flow
15 guide so that upon an increase in the thickness of said region the openings of said throttles in the given flow guide decrease and so that upon a decrease in the thickness of said region the openings of said throttles in the given flow guide increase;

wherein the mold parts include an adjustable cavity mold part and a core mold part for shaping at least a portion of the base-wall section of the mold cavity when the
20 adjustable cavity mold part and the core mold part are combined in opposition to one another;

the method further comprising the step of:

(d) dynamically varying the position of the adjustable cavity mold part to adjust

the alignment between the adjustable cavity mold part and the core mold part.

38. (new) A method of injection molding a plastic product having a base wall and a sidewall, the method comprising the steps of:

- 5 (a) injecting fluid plastic material into a base-wall section of a mold cavity; and
- (b) conducting said injected plastic material through at least one flow guide in the base-wall section and thence into a sidewall section of the mold cavity;

 wherein step (b) comprises the step of:

- (c) conducting said injected plastic material through a sequence of variable-
- 10 opening throttles in a given said at-least-one base-wall-section flow guide, wherein the openings of said throttles can vary in response to variations in the thickness of a region of the sidewall section into which injected plastic material is conducted from the given flow guide so that upon an increase in the thickness of said region the openings of said throttles in the given flow guide decrease and so that upon a decrease in the thickness of
- 15 said region the openings of said throttles in the given flow guide increase;

 the method further comprising the step of:

- (d) shaping the mold cavity by combining opposed first and second mold parts in a direction of mold closure; and

- wherein the shortest distance within the mold cavity in said direction of mold
- 20 closure is larger than the elastic compression distance of the mold cavity when the mold is compressed by a requisite clamping force.

39. (new) A mold for injection molding a plastic product having a base wall and a sidewall, comprising:

mold parts for shaping a mold cavity for forming the product and a gate from which fluid plastic material can be injected into a base-wall (50) section of the mold
5 cavity;

wherein the base-wall section includes a plurality of flow guides for conducting said injected plastic material through the base-wall section and thence into a sidewall section of the mold cavity; and

wherein at least some of the base-wall-section flow guides include a sequence of
10 variable-opening throttles through which said injected plastic material is so conducted, wherein the openings of said throttles can vary in response to variations in the thickness of a region of the sidewall section into which injected plastic material is conducted from a given said at-least-one base-wall-section flow guide so that upon an increase in the thickness of said region the openings of said throttles in the given flow guide decrease
15 and so that upon a decrease in the thickness of said region the openings of said throttles in the given flow guide increase;

wherein the mold cavity further includes chambers adjacent the sidewall-section periphery of the base-wall section at a juncture of the plastic material directed into thin-wall cavity sectors of the base-wall section by flow guides adjacent the thin-wall cavity
20 sectors for forming ridges on the inside of the base wall of the injection-molded product.

40. (new) A mold for injection molding a plastic product having a base wall and a sidewall, comprising:

mold parts for shaping a mold cavity for forming the product and a gate from which fluid plastic material can be injected into a base-wall section of the mold cavity;

5 wherein the base-wall section includes at least one flow guide for conducting said injected plastic material through the base-wall section and thence into a sidewall section of the mold cavity; and

wherein a given said at-least-one base-wall-section flow guide includes a sequence of variable-opening throttles through which said injected plastic material is so
10 conducted, wherein the openings of said throttles can vary in response to variations in the thickness of a region of the sidewall section into which injected plastic material is conducted from the given flow guide so that upon an increase in the thickness of said region the openings of said throttles in the given flow guide decrease and so that upon a decrease in the thickness of said region the openings of said throttles in the given flow
15 guide increase;

wherein the mold parts include a movable mold part that is disposed for protraction into and retraction from the at-least-one base-wall-section flow guide for adjusting said conduction within said flow guide.

41. (new) A mold for injection molding a plastic product having a base wall and a sidewall, comprising:

mold parts for shaping a mold cavity for forming the product and a gate from which fluid plastic material can be injected into a base-wall section of the mold cavity;

5 wherein the base-wall section includes at least one flow guide for conducting said injected plastic material through the base-wall section and thence into a sidewall section of the mold cavity; and

wherein a given said at-least-one base-wall-section flow guide includes a sequence of variable-opening throttles through which said injected plastic material is so conducted, wherein the openings of said throttles can vary in response to variations in the thickness of a region of the sidewall section into which injected plastic material is conducted from the given flow guide so that upon an increase in the thickness of said region the openings of said throttles in the given flow guide decrease and so that upon a decrease in the thickness of said region the openings of said throttles in the given flow guide increase;

15 wherein the mold parts include an adjustable cavity mold part and a core mold part for shaping at least a portion of the base-wall section of the mold cavity when the adjustable cavity mold part and the core mold part are combined in opposition to one another;

20 the mold further comprising:

means for initializing the position of the adjustable cavity mold part to adjust the alignment between the adjustable cavity mold part and the core mold part.

42. (new) A mold according to Claim 41, further comprising:

means for dynamically varying the position of the adjustable cavity mold part to adjust the alignment between the adjustable cavity mold part and the core mold part.

5 43. (new) A mold for injection molding a plastic product having a base wall and a sidewall, comprising:

mold parts for shaping a mold cavity for forming the product and a gate from which fluid plastic material can be injected into a base-wall section of the mold cavity;

 wherein the base-wall section includes at least one flow guide for conducting said
10 injected plastic material through the base-wall section and thence into a sidewall section of the mold cavity; and

 wherein a given said at-least-one base-wall-section flow guide includes a sequence of variable-opening throttles through which said injected plastic material is so conducted, wherein the openings of said throttles can vary in response to variations in the
15 thickness of a region of the sidewall section into which injected plastic material is conducted from the given flow guide so that upon an increase in the thickness of said region the openings of said throttles in the given flow guide decrease and so that upon a decrease in the thickness of said region the openings of said throttles in the given flow guide increase;

20 wherein the mold parts include an adjustable cavity mold part and a core mold part for shaping at least a portion of the base-wall section of the mold cavity when the adjustable cavity mold part and the core mold part are combined in opposition to one another;

the mold further comprising:

means for dynamically varying the position of the adjustable cavity mold part to adjust the alignment between the adjustable cavity mold part and the core mold part.

5 44. (new) A mold for injection molding a plastic product having a base wall and a sidewall, comprising:

mold parts for shaping a mold cavity for forming the product and a gate from which fluid plastic material can be injected into a base-wall section of the mold cavity;

 wherein the base-wall section includes at least one flow guide for conducting said
10 injected plastic material through the base-wall section and thence into a sidewall section of the mold cavity; and

 wherein a given said at-least-one base-wall-section flow guide includes a sequence of variable-opening throttles through which said injected plastic material is so conducted, wherein the openings of said throttles can vary in response to variations in the
15 thickness of a region of the sidewall section into which injected plastic material is conducted from the given flow guide so that upon an increase in the thickness of said region the openings of said throttles in the given flow guide decrease and so that upon a decrease in the thickness of said region the openings of said throttles in the given flow guide increase;

20 wherein the mold cavity is shaped by combining opposed first and second mold parts in a direction of mold closure; and

 wherein the shortest distance within the mold cavity in said direction of mold closure is larger than the elastic compression distance of the mold cavity when the mold is compressed by a requisite clamping force.